

belongs exclusively to the salt water, *Mysis relicta* of Lovén, one of those extraordinary relics of the glacial period whose presence in some of the great inland lakes of Sweden has lately excited so much interest. I found it in small numbers at Stigersand, below Skreifjeld, in from 8–10 fathoms, just in the corner where a sandbank slopes steeply up from the deeper water beyond.

“Associated with it, I found numerous examples of a species of *Gammarus* which at the very first glance differed markedly from the form I had previously noticed, and which seems to be the *Gammarus cancelloides* of Gerstfeldt, which was first discovered in the Seas of Baikal and of Angara, and which has lately been also found in Sweden, and which Lovén likewise considers originally to have belonged to the sea.”

On the Expulsion of the Carbonic Acid from the Blood during Respiration. By DR. LUDWIG.

As less carbonic acid is present in arterial than in venous blood, the elimination of this carbonic acid during respiration must be ascribed either to the oxygen or to the tissue of the lungs. For the decision of this question a series of experiments was undertaken, in which this gas was collected from unaltered venous blood, and also from venous blood which had been agitated with air containing oxygen. The blood agitated with oxygen was found to have lost its carbonic acid to such an extent that its amount of this gas was only equal to that contained in arterial blood. There is consequently no reason for regarding the pulmonary tissue as the cause of the evolution of carbonic acid.

When the unaltered venous blood was left for twenty-four hours in ice-cold water and then analyzed, it appeared that in this case also the amount of carbonic acid was diminished. The same process therefore takes place in blood poor in oxygen as in that which contains oxygen in abundance, but with this difference, that what takes place very completely and in a short time in blood rich in oxygen is effected very gradually in that which is poor in that element.

To determine whether the evolution of carbonic acid is effected directly by the oxygen, or only by the intervention of the blood-corpuscles, the purest possible serum, which, as is well known, contains much carbonic acid, was employed—and, for the sake of comparison, both unaltered serum and such as had been agitated with oxygen. In these experiments the same quantity of combined carbonic acid was found in every case, and consequently only that portion of the oxygen which has passed into the corpuscles acts in the evolution of carbonic acid.

As arterial blood may thus be prepared artificially from venous blood, it was natural to try whether the reverse of this process could be effected. This, however, appears to be impossible. For when the oxygen was pumped out of arterial blood and replaced by a quantity of carbonic acid equal to that which usually occurs in venous blood, the amount of combined carbonic acid in the blood could not be increased. Hence it follows that carbonic acid is furnished in the

combined form by the tissues which prepare venous blood. This fact also leads to certain conclusions as to the manner in which the carbonic acid is combined in the blood and expelled by the corpuscles.

When the blood is completely deprived of gas, a portion of its disks is decomposed into a colourless stroma and a coloured fluid. The same phenomenon is observed, although in a less degree, when only the oxygen is removed from the blood, whether by pumping or by suffocation. On the other hand, the attempt to render the blood perfectly free from carbonic acid by the introduction of oxygen was unsuccessful. Even after the long-continued action of air containing oxygen, but free from carbonic acid, about 4 volumes per cent. of carbonic acid always remain, and these can only be got rid of after the removal of the oxygen. Blood so treated showed no changed corpuscles.—*Sitzungsber. der kais. Akad. der Wiss. in Wien*, 8 January, 1864, p. 3.

“*New Forms of Mollusks?*”

To the Editors of the Annals and Magazine of Natural History.

GENTLEMEN,—May I be permitted, as a constant reader of your excellent Magazine, to record my humble protest against the unscientific practice (now very much on the increase) of describing, in portentous detail, varieties of well-known species of shells as “*New Forms of Mollusks?*” I ought not, perhaps, to cavil at Dr. P. P. Carpenter giving the new name of *Callista pollicaris* to a shell which I had minutely examined and declared to be a variety of *Dione prora* (*Callista prora*, Carpenter), because it involves a question of opinion; but I may be allowed to object to his printing, as a statement of my views, a hasty conversational concurrence with an opinion to which, when I came to print my monograph, I refrained from giving publicity. What can be the object of describing as a new species a shell which the describer, in the same sentence, denotes as being probably not a new species? Dr. P. P. Carpenter brought me some shells, showing that he had named them *Callista puella*. I told him that they were simply varieties of *Dione pannosa* (*Callista pannosa*, Carpenter). But his name of *puella* was not then published: it appears in your last Number (p. 312), printed thus:—“*Callista (? pannosa) puella.*” Dr. P. P. Carpenter gives the shell a new name while at the same time denoting his fear that it may be a variety of one named already; and he goes on to remark, with reference to some white specimens of it, “The colourless subtrigonal shells were regarded by Mr. Reeve as a separate species, but he did not allude to them in his monograph.” The reason of my not alluding to them is obvious. Should even the soft parts of the shells under consideration ever come into Dr. P. P. Carpenter’s hands, I venture to predict that he will find difficulty in showing them to be “*New Forms of Mollusks.*”

I am, Gentlemen,

Your obedient Servant,

LOVELL REEVE.

Sutton, Hounslow,
April 7, 1863.